

REMARKS/ARGUMENTS

Claim 38 is amended. Claims 1-18 were previously canceled, and claims 31-33 were withdrawn from consideration. Claims 19-50 are now pending. Applicants respectfully request reexamination and reconsideration of the application.

Applicants acknowledge with appreciation the allowance of claims 19-30 and 34-37. As withdrawn claims 31-33 depend from allowed claim 19, they too are allowable. Applicants request that the restriction of claims 31-33 be withdrawn and that these claims be passed to issuance along with allowed claims 19-30 and 34-37.

Claim 38 stands rejected under 35 USC § 102(b) as anticipated by U.S. Patent No. 5,495,667 to Farnworth et al. ("Farnworth"). Applicants respectfully traverse this rejection.

Amended independent claim 38 is directed to a method of forming an "interconnection element (185) comprising a first element material (170) *and a second element material (180)*", as shown for example in Figures 10-17. In contrast, Farnworth teaches forming a contact pin (24) from a *single material* (either copper, gold, a nickel alloy or a spring steel alloy) using conventional wire bond apparatuses and techniques (Col. 4, lines 54-67).

Amended independent claim 38 also recites "transforming a property of one of the first element material (170) and the second element material (180) to modify the shape of the interconnection element (185), *the transformed property causing the interconnection element to bend without the application of an external force*". For example, structure (100) can be subjected to a thermal treatment to induce a volume transformation of second element material (180), as taught on page 25, lines 3-30, and shown in Figures 10 and 11 of the present application as filed. As the volume of the second element material (180) shrinks in this example, the volume of the first element material (170) remains relatively constant. The volume transformation of the second element material (180), with the free end of interconnection element (185) tending to curve towards its secured base, will similarly deform first element material (170), thus modifying the shape of interconnection element (185).

In contrast, Farnworth neither teaches nor suggests "transforming a property of one of the first element material (170) and the second element material (180) to modify the shape of the interconnection element (185), *the transformed property causing the interconnection element to bend without the application of an external force*". The Examiner refers to Figures 3A and 3B and element 28 as evidence of such a teaching. Element 28 is a laser used to locally heat and

soften the wire material so that it can be formed into the desired shape, which upon cooling will be permanent. (Col. 5, lines 35-55). However, the shape of the contact pin (24B) in Farnworth is modified by bonding tool (26), in other words *by the application of an external force*, not by a transformation of a property as recited in claim 38. For at least these reasons, independent claim 38 patentably distinguishes over Farnworth.

Claims 39-50 stand rejected under 35 USC § 103(a) as unpatentable over U.S. Patent No. 5,495,667 to Farnworth et al. ("Farnworth") in view of U.S. Patent No. 5,613,861 to Smith et al. ("Smith"). Applicants respectfully traverse this rejection.

Claims 39-50 depend from claim 38 and therefore also distinguish over Farnworth as explained above. Smith does not make up the deficiencies in Farnworth. For example, Smith, taken alone or in combination, does not teach or suggest forming an "interconnection element (185) comprising a first element material (170) and a second element material (180)", let alone "transforming a property of one of the first element material (170) and the second element material (180) to modify the shape of the interconnection element (185), the transformed property causing the interconnection element to bend without the application of an external force". Moreover, claims 39-50 recite additional features that further distinguish over the combination of Farnworth and Smith.

For example, claim 42 recites "coupling the second interconnection elements to corresponding contact nodes of a third substrate in an interposer application." Neither Farnworth nor Smith refer to an interposer application. Therefore, dependant claim 42 patentably distinguishes over the combination relied on.

In view of the foregoing, Applicants submit that all of the pending claims 19-50 are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicants' attorney would be helpful, the Examiner is invited to contact the undersigned at (925) 290-4031.

Respectfully submitted,

Date: February 10, 2005

By Douglas C. Limbach
Douglas C. Limbach
Reg. No. 35,249

FormFactor Inc.
7005 Southfront Rd.
Livermore, CA 94551
Telephone: (925) 290-4000
Fax: (925) 290-4119